

REMARKS

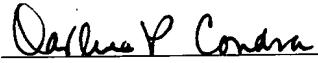
After entry of this amendment, claims 1-9 are pending in the application. Claim 1 has been amended. Claims 2-3 have been cancelled without prejudice. Claims 4-9 have been added in this amendment.

It is submitted that this Amendment has antecedent basis in the application as originally filed, including the specification, claims and drawings, and that this Amendment does not add any new subject matter to the application. Consideration of the application as amended is requested. It is submitted that this Amendment places the application in suitable condition for allowance; notice of which is requested. An enclosed Substitute Specification incorporates the changes in this Preliminary Amendment.

If the Examiner feels that prosecution of the present application can be expedited by way of an Examiner's amendment, the Examiner is invited to contact the Applicant's attorney at the telephone number listed below.

Respectfully submitted,

YOUNG & BASILE, P.C.


Darlene P. Condra
Attorney for Applicant
Registration No. 37,113
(248) 649-3333

YOUNG & BASILE, P.C.
3001 W. Big Beaver Rd.
Suite 624
Troy, Michigan 48084

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Version with Markings to Show Changes Made

- Amendment filed on July 8, 2005
pursuant to Article 34 PCT -

To achieve the above object, the present invention as set forth in claim 1 provides an intraductal foreign body removal instrument which removes fibrous foreign bodies present in a duct having a liquid filled therein, characterized 5 by comprising: a flexible insertion tube inserted in the duct; a wire made of flexible wire material and inserted in the insertion tube so as not to project from the end thereof; and a rotating device which rotates the wire and thereby vibrates the tip of the insertion tube.

10. The invention set forth in claim 1 allows the insertion tube and the wire in the insertion tube to be reduced in diameter, making it possible to insert them easily in a duct. Besides, that side (hereinafter referred to as a free end side) of the intraductal foreign body removal instrument which is inserted 15 in a duct is not equipped with any special mechanism (such as the gripping mechanism of the conventional example). That is, when removing fibrous foreign bodies out of a duct using the intraductal foreign body removal instrument, the free end side is fed into the duct, but it does not encounter much 20 resistance because it is only the insertion tube (and the wire in the insertion tube). Consequently, even elbows and similar bends, for example, do not offer high resistance. Thus, the instrument can be used even in small-diameter ducts. Also, feed limits of the intraductal foreign body removal instrument 25 can be increased.

[0007]

When the free end side of the intraductal foreign body removal instrument is inserted to a desired position, fibrous

foreign bodies can be tangled around the free end side of the intraductal foreign body removal instrument by rotating the wire by the rotating device. After the fibrous foreign bodies are tangled, they can be removed as the intraductal foreign 5 body removal instrument is retrieved from the duct through insertion position.

The mechanism by which fibrous foreign bodies can be tangled around the free end side of the intraductal foreign body removal instrument through rotation of the wire is not 10 completely clear, but is presumed to be as follows.

[0008]

When the wire rotates, its whirling causes the insertion tube to vibrate. The vibration lowers static pressure near the free end side of the intraductal foreign body removal 15 instrument. Consequently, fluid convection (eddy) toward the intraductal foreign body removal instrument occurs in the duct. The vibration and convection produce a force which moves the fibrous foreign bodies toward the free end side of the intraductal foreign body removal instrument, causing them to 20 get tangled around the free end side.

In this way, the intraductal foreign body removal instrument according to the present invention can remove fibrous foreign bodies clogging elbows, narrowed parts, or other constrictions of pipes or similar ducts without requiring 25 a large, complex equipment configuration.

Claim 4 of the present invention sets forth the intraductal foreign body removal instrument according to claim 1,

characterized in that the wire has a curved portion on the free end side thereof.

According to the invention set forth in claim 4, a curved portion is provided on the free end side of the wire, which 5 is suitable for effectively producing a convection of a fluid.

Claim 5 of the present invention sets forth the intraductal foreign body removal instrument according to claim 1 or 4, characterized in that the intraductal foreign body removal instrument is a catheter inserted into an intravital duct.

10 [0009]

The invention set forth in claim 5 allows a small-diameter catheter with a simple mechanism to be constructed, making it possible to remove fibrous foreign bodies out of intravital ducts without damaging inner walls of the ducts. Thus, the 15 intraductal foreign body removal instrument is less invasive to the patients.

Claim 6 of the present invention sets forth the intraductal foreign body removal instrument according to any one of claims 1, 4 and 5, characterized by further comprising a flexible 20 guide tube which is inserted in the duct and into which the insertion tube is inserted loosely.

[0010]

The invention set forth in claim 6, according to which the insertion tube is loosely inserted into the guide tube, 25 allows the guide tube and insertion tube to move relative to each other in the longitudinal direction. If the clearance between the guide tube and insertion tube is designed to accommodate fibrous foreign bodies tangled around the free

AMENDED CLAIMS

(filed on July 8, 2005 under Art. 34 PCT)

1. (Amended) An intraductal foreign body removal instrument
5 which removes fibrous foreign bodies present in a duct having
a liquid filled therein, characterized by comprising: a
flexible insertion tube inserted in the duct; a wire made of
flexible wire material and inserted in the insertion tube so
as not to project from the end thereof; and a rotating device
10 which rotates the wire and thereby vibrates the tip of the
insertion tube.

2. (Canceled)

15 3. (Canceled)

4. (New) The intraductal foreign body removal instrument
according to claim 1, characterized in that the wire has a
curved portion on the tip side thereof.

20

5. (New) The intraductal foreign body removal instrument
according to claim 1 or 4, characterized in that the intraductal
foreign body removal instrument is a catheter inserted into
an intravital duct.

25

6. (New) The intraductal foreign body removal instrument
according to any one of claims 1, 4 and 5, characterized by
further comprising a flexible guide tube which is inserted

in the duct and into which the insertion tube is inserted loosely.